The HC871 is a lightweight helical antenna covering the GPS L1/L2, GLONASS G1/G2, Galileo E1 and BeiDou B1 frequency bands, designed and crafted for precision positioning.

Weighing 25 grams, the lightweight HC871 features a precision tuned helix element that provides excellent axial ratios and operates without the requirement of a ground plane, making it ideal for a wide variety of applications including Unmanned Aerial Vehicles (UAVs).

The HC871 features an industry leading low current Low Noise Amplifier (LNA) that includes an integrated low-loss pre-filter to protect against harmonic interference from high amplitude signals, such as the 700MHz band LTW and other near in-band cellular signals.

The HC871 is protected by a robust, military grade plastic enclosure with an integrated SMA connector for screw on mounting that securely seals the unit with an O-ring complying with IP67 standards. The enclosure also provides two 3/32” x 48tpi threaded holes in the base for secure attachment of the unit.

### Applications
- Airborne Unmanned Autonomous Vehicles
- Precision GPS position
- Dual Frequency RTK receivers
- Mission Critical GPS Timing
- Military & Security
- Network Timing and Synchronization

### Features
- Very low Noise Preamp, 2.0dB
- Axial ratio: <0.5dB @ zenith
- LNA Gain 28dB typ.
- Low current: 12 mA typ.
- ESD circuit protection: 15 KV
- Invariant performance from: +2.5 to 16VDC

### Benefits
- Lightweight
- Ideal for L1/L2 RTK surveying systems
- Great multipath rejection
- Increased system accuracy
- Excellent signal to noise ratio
- IP67, REACH, and RoHS compliant
**HC871 GPS L1/L2 + GLONASS G1/G2 + Galileo E1 + BeiDou B1 Helix Antenna**

**Specifications** (Measured at Vcc = 3V, and Temperature = 25°C)

### Antenna
- **Element Architecture**: Dual Frequency Quadrifilar Helix
- **L1 / L2 Peak Gain**: 1.6dBi / -0.3 dBi peak gain at Zenith
- **G1 / G2 Peak Gain**: 1.2dBi / 0.5dBi peak gain at Zenith
- **Axial Ratio, over full bandwidth, both L1 & L2**: ≤ 0.5dB max. at Zenith
- **Polarization**: RHCP

### Electrical
- **Bandwidth**: L2: 1215MHz-1254MHz, L1: 1559MHz-1606MHz
- **Overall LNA Gain**: 28dB typ, 26dB min each of L1 and L2 Bands
- **LNA Noise Figure**: 2.0dB typ @ 25°C
- **VSWR (at LNA output)**: <1.5:1 typ, 1.8:1 max.
- **Supply Voltage Range**: +2.5 to 16VDC nominal, up to 50mV p-p ripple
- **EMI Immunity**: 50V/m, excepting L1+/ -100MHz and L2 +/- 100MHz
- **Supply Current**: 12 mA typ. At 25°C.
- **ESD Circuit Protection**: 15 KV air discharge.

### Out-of-Band Rejection

<table>
<thead>
<tr>
<th></th>
<th>L1</th>
<th>L2</th>
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</thead>
<tbody>
<tr>
<td>&lt;1400 MHz</td>
<td>&gt;48 dB</td>
<td>&gt;1100 MHz</td>
</tr>
<tr>
<td>&lt;1500 MHz</td>
<td>&gt;39 dB</td>
<td>&lt;1190 MHz</td>
</tr>
<tr>
<td>&gt;1625 MHz</td>
<td>&gt;38 dB</td>
<td>&gt;40 dB</td>
</tr>
<tr>
<td>&gt;1700MHz</td>
<td>&gt;57 dB</td>
<td>&gt;46 dB</td>
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### Mechanicals & Environmental
- **Mechanical Size**: 63.2mm (h) x 33.2mm (d)
- **Connector**: SMA Male
- **Enclosure**: Radome: EXL9330, Base: EXL9330
- **Operating Temperature Range**: -40°C to +85°C
- **Weight**: 24 g
- **Environmental**: RoHS and REACH compliant
- **Shock**: Vertical axis: 50 G, other axes: 30 G
- **Vibration**: 3-axis, sweep = 15 min, 10 to 200 Hz sweep: 3 G

### Ordering Information

HC871 – Helical GPS L1/L2 + GLONASS G1/G2 + Galileo E1 + BeiDou B1  
33-HC871-30


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